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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,696	07/24/2002	Yukoh Hiei	0760-0303 P	5503

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EXAMINER	
HWU, JUNE	

ART UNIT	PAPER NUMBER
1661	

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	01/10/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 01/10/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/089,696	HIEI ET AL.	
	Examiner	Art Unit	
	June Hwu	1661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *22-29* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *22-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment to the claims dated November 2, 2006 is acknowledged and entered.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in the prior Office action.

3. Claims 1-8, 10-11, 13-14, 16-17 and 19-20 are cancelled and claims 22-29 are newly added.

4. The objection of claims 8, 11, 14, 17 and 20 is withdrawn due to Applicants amendment of the claims.

5. The rejection under 35 USC 112, first paragraph of claims 1-8, 10-11, 12-13, 16-17 and 19-20 is withdrawn due to Applicants amendment of the claims.

6. The rejection under 35 USC 112, second paragraph of claims 11 and 14 is withdrawn due to Applicants amendment of the claims.

7. The rejection under 35 USC 102(b) of claims 1, 3, 4, 6, 10, and 11 as being anticipated by Forreiter et al (The Plant Cell, 9: 2171-2181, 1997) is withdrawn due to Applicants amendment of the claims.

8. The rejection under 35 USC 102(e) of claims 1-3, 6, 8, 10, 11, 13-14, 16-17 and 19-20 as being anticipated by Konzak et al (U.S. Patent No. 6,362,393) is withdrawn due to Applicants amendment of the claims.

9. The rejection under nonstatutory obviousness-type double patenting of claims 1-5, 8, 10, 11, 13, 14, 16, 17, 19 and 20 over claims 1, 8-12, 14, 15, 17, 18, 20, 21, 23 and 24 of copending Application No. 10/089695 is withdrawn due to Applicants amendment of the claims.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claims 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konzak et al (U.S. Patent No. 6,362,393) ('393) in view of Forreiter et al (The Plant Cell, 1997, vol. 9, pp. 2171-2181) in light of Pierce Biotechnology, Inc., 1/2005 Convert between times gravity (x *g*) and centrifuge rotor speed (RPM). The rejection is modified from the rejection set forth in the Office action mailed May 2, 2006, due to Applicant's amendment of the claims.

The claims are drawn to a method of plant transformation comprising centrifuging the plant, plant cell, or plant tissue of rice or maize (plants from the family *Gramineae*, a monocot and an angiosperm) at an acceleration of 1000G to 150,000G, and contacting the plant, plant cell or plant tissue with *Agrobacterium* wherein the centrifugation occurs for 1 second to 4 hours, to plant cells or plant tissue, before gene transfer utilizing.

Konzak et al ('393) disclose a method of centrifuging plant tissues (col. 4, lines 6-9) of rice or corn (col. 6, lines 29-32) at the acceleration of 100G for 3 minutes (col. 16, line 1) prior to gene introduction. Moreover, '393 reference teach that gene transformation could occur at any time of the procedure (col. 4, lines 30-36) by using *Agrobacterium tumifaciens* (col. 12, lines 53-56).

'393 reference does not teach the centrifugation speed of 1000G to 150,000G.

Forreiter et al. discloses a method of gene transfer *Arabidopsis thaliana*, an Angiosperm, cells by *Agrobacterium* comprising centrifuging the cells for one minute at 600G (page 2178, 6th paragraph).

It would have been obvious to one of ordinary skill in the art to use the method of promoting gene introduction into plant cells by centrifuging the plant cells or plant tissues before

gene introduction by applying *Agrobacterium* as taught by '393 reference, and to modify that method by adjusting the centrifugal acceleration as taught by Forreiter et al given the advantage of separating the tissues at higher speed. One would have been motivated to do so, given the effectiveness of separating plant tissue cells by centrifugation. The rate and time of the centrifugation is clearly a result effective parameter that a person of ordinary skill in the art would routinely optimize. Optimization of parameters is a routine practice that would be obvious for a person of ordinary skill in the art to employ. It would have been customary for a skilled artisan to determine the optimal rate and time in order to best achieve the desired results. It is noted that Pierce Biotechnology discloses "centrifugation speed and time often are not critical factors in routine sampling-handling..." (p. 1, 3rd paragraph). Thus, absent some demonstration of unexpected results from the claimed parameters, this optimization of rate and time of centrifugation would have been obvious at the time of Applicants' invention.

Thus, the invention as a whole was clearly *prima facie* obvious to one of ordinary skill in the art at the time the invention was made.

11. Applicants' arguments filed November 2, 2006 have been fully considered but they are not persuasive.

Applicants argue that '393 and Forreiter do not teach or suggest that the claim element of centrifuging the plant, plant cells or plant tissue under centrifugal acceleration of 1000g to 150,000G (p. 8 of reply).

This argument is not found persuasive because in common lab practice, cells are centrifuged at a given rpm, regardless of rotor size, and thus regardless of x *g*. Pierce shows that a small change in rotor size would change a given x *g* to another, for example, at 3000 rpm

changing from a rotor radius of 6 cm to one of 10 cm would change the x *g* from 604G to 1006G. So, the use of a different rotor size would change the x *g*.

Applicants argue that the unexpected results by increasing the centrifugal acceleration to between 1000G and 150,000G affected the plant transformation efficiency (p. 9 of reply).

This argument is not found persuasive the differences in transformation efficiency in Tables 1-3 between samples centrifuged at <1000G and those centrifuged at >1000G is often not significant or even decreased (see Table 1, last line specifically between 750G and 8,500G). Tables 1-3 do not show consistent results in which there are significant difference between centrifugal acceleration. For example, Table 2, line 1 shows some difference between 760G and 19,100G, on the other hand at line 4 there is no difference between 760G, 8,500G and 19,100G.

Applicants argue that '393 reference and Forreiter use centrifugation speeds of less than 1000G to separate the mixture (p. 9 of reply).

This argument is not found persuasive because '393 reference separated the androgenic from the non-androgenic microspores because the androgenic microspores are vacuolated and are less dense and tends to float on top (col. 16, lines 12-13). These upper bands of microspores were used for the plant culture (col. 16, lines 9-10).

For the reasons outlined above and in the previous Office action, the rejection is deemed proper and is maintained.

Conclusion

12. No claims are allowed.

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to June Hwu whose telephone number is (571) 272-0977. The Examiner can normally be reached Monday through Thursday from 6:00 a.m. to 4:30 p.m.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Anne Marie Grunberg, can be reached on (571) 272-0975. The fax number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JH

ANNE KUBELIK, PH.D.
PRIMARY EXAMINER